

IN THE CLAIMS

1. (Currently Amended) A therapeutic ultrasound system, comprising:

an ultrasonic transducer ~~for irradiating~~ which irradiates a therapeutic ultrasound on a region to be treated;

an input unit to which information of irradiation of said therapeutic ultrasound is inputted, said information including a continuous insonation time of said therapeutic ultrasound;

a control unit to which said information is inputted and which controls irradiation of said therapeutic ultrasound;

~~setting means for setting a continuous insonation time of said therapeutic ultrasound; and~~

~~cavitation detecting means for detecting, a sound detector which detects, during exposure of said therapeutic ultrasound, cavitation caused~~ an audible sound generated in ~~[[a]] said region to be treated exposed with said therapeutic ultrasound;~~

a waveform analyzing unit which obtains a cross-correlation function between a waveform of the detected audible sound and a typical waveform of an audible sound previously obtained in a region to be treated; and

a unit which detects a point of time of detection of the audible sound using said cross-correlation function, and which

sends a signal expressing detection of the audible sound to said control unit,

~~wherein said setting means sets a continuous insonation time according to which~~ said ultrasonic transducer irradiates said therapeutic ultrasound on said ~~exposed~~ region to be treated ~~while said exposed region is experiencing said cavitation,~~ in said continuous insonation time from [[a]] said point of time of detection of the cavitation audible sound by said cavitation detecting means sound detector.

2. (Canceled).

3. (Canceled).

4. (Currently Amended) A therapeutic ultrasound system, comprising:

an ultrasonic transducer ~~for irradiating~~ which irradiates a therapeutic ultrasound on a region to be treated;

an input unit to which an information of irradiation of said therapeutic ultrasound is inputted, said information including a continuous insonation time of said therapeutic ultrasound;

a control unit to which said information is inputted and which controls irradiation of said therapeutic ultrasound;

~~detecting means for detecting,~~ a sound detector which detects, during exposure of said therapeutic ultrasound, an audible sound generated in [[a]] said region to be treated ~~exposed with said therapeutic ultrasound; and~~

a signal processing unit which obtains a FFT spectrum of said audible sound before a start of irradiation of said therapeutic ultrasound and a FFT spectrum of said audible sound after the start of irradiation of said therapeutic ultrasound; and

a unit which detects a point of time of detection of the audible sound by comparing the FFT spectrum before the start of irradiation of said therapeutic ultrasound with the FFT spectrum after the start of irradiation of said therapeutic ultrasound,

~~wherein setting means for setting a continuous insonation time according to which~~ said ultrasonic transducer irradiates said therapeutic ultrasound on said ~~exposed~~ region to be treated ~~while said exposed region is generating said audible sound,~~ in said continuous insonation time from a said point of time of detection of the audible sound by said ~~detecting means~~ sound detector.

5. (Canceled)

6. (New) A therapeutic ultrasound system according to Claim 4, wherein said unit calculates a first integrated value of the FFT spectrum before the start of irradiation of said therapeutic ultrasound in a preset frequency interval and a second integrated value of the FFT spectrum after the start of irradiation of said therapeutic ultrasound in said preset frequency interval, and detects said point of time of detection of the audible sound by comparing said first integrated value with said second integrated value.

7. (New) A therapeutic ultrasound system according to Claim 6, wherein said preset frequency interval is 250 Hz to 550 Hz.

8. (New) A therapeutic ultrasound system according to Claim 4, wherein said unit detects said point of time of detection of the audible sound by comparing a signal level at a particular frequency of the FFT spectrum before the start of irradiation of said therapeutic ultrasound with a signal level at said particular frequency of the FFT spectrum after the start of irradiation of said therapeutic ultrasound.

9. (New) A therapeutic ultrasound system, comprising:

an ultrasonic transducer which irradiates a therapeutic ultrasound on a region to be treated;

an input unit to which an information of irradiation of said therapeutic ultrasound is inputted, said information including a continuous insonation time of said therapeutic ultrasound;

a control unit to which said information is inputted and controls irradiation of said therapeutic ultrasound;

a sound detector which detects, during exposure of said therapeutic ultrasound, an audible sound generated in said region to be treated;

a signal processing unit which obtains a FFT spectrum of the detected audible sound; and

a waveform analyzing unit which obtains a cross-correlation function between the FFT spectrum of the detected audible sound and a typical FFT spectrum of a typical waveform of an audible sound previously obtained in a region to be treated; and

a unit which detects a point of time of detection of the audible sound using said cross-correlation function and sends a signal expressing detection of the audible sound to said control unit,

wherein said ultrasonic transducer irradiates said therapeutic ultrasound on said region to be treated, in said continuous insonation time from said point of time of detection of the audible sound by said sound detector.